



DEPARTMENT OF THE AIR FORCE  
59TH MEDICAL WING (AETC)  
JOINT BASE SAN ANTONIO - LACKLAND TEXAS

5 JAN 2017

MEMORANDUM FOR SGVUO

ATTN: ERICA DEAN

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Use of Miniature Marshmallows to Reduce Stress, Enhance Safety, and Increase Efficiency When Working with Sinclair Miniature Swine** presented at/published to **2017 Laboratory Animal Welfare Training Exchange Conference in Hershey, PA, 13-16 June 2017** in accordance with MDWI 41-108, has been approved and assigned local file #**17012**.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are 59 MDW staff member, we can forward your request for funds to the designated wing POC.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

LINDA STEEL-GOODWIN, Col, USAF, BSC  
Director, Clinical Investigations & Research Support

## PROCESSING OF PROFESSIONAL MEDICAL RESEARCH PUBLICATIONS/PRESENTATIONS

### INSTRUCTIONS

1. The author must complete page two of the 59 MDW Form 3039 (this form):
  - a) In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSC) [SG5 O&M]; SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP); Grants; etc.]
2. Print your name, rank/grade, sign and date the form in the author's signature block or use electronic signature.
3. Attach a copy of the 59th MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g., case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box of the 59 MDW Form 3039.
4. Attach a copy of your abstract, paper, poster and other supporting documentation.
5. Save and forward, via email, the processing form and all supporting documentation to your Unit Commander, Program Director or immediate supervisor for review/approval.
6. On page 2, have either your Unit Commander, Program Director or immediate supervisor:
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7. Contact the 59th CRD/Publications and Presentations Section at (292-7141) for instructions for submitting the request form.
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**NOTE:** All abstracts, papers, posters, etc., should contain the following disclaimer statement:

***"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components."***

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***"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DoDI 3216.02\_AFI 40-402, Protection of Human Subjects in Biomedical and Behavioral Research."***

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***"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."***



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<b>TO:</b> Clinical Research Division/SGVU (59 MDW/SGVU)		<b>FROM: Author's Name, Rank, Grade, Office Symbol</b> Erica Dean, GS-11, SGVUO	
		<b>PROTOCOL NUMBER:</b> FWH20160012A	
<b>PROTOCOL TITLE - [NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.]</b> GENERAL PROTOCOL FOR HOLDING ANIMALS IN A "POOL" AT WHMC/CRD PENDING ASSIGNMENT TO A RESEARCH OR TRAINING PROTOCOL			
<b>1. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED</b> Use of Miniature Marshmallows to Reduce Stress, Enhance Safety, and Increase Efficiency When Working With Sinclair Miniature Swine			
<b>2. FUNDING RECEIVED FOR THIS STUDY?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>FUNDING SOURCE:</b>			
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<input type="checkbox"/>	OTHER (Describe: Name of Meeting, City, State, and Date of Meeting)		
<b>6. WHAT IS THE EXPECTED DATE YOUR PRESENTATION/PUBLICATION WILL BE SUBMITTED TO THE DEFENSE TECHNICAL INFORMATION CENTER (DTIC)?</b>			
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<b>7. WHO IS THE PRIMARY 59 MDW POINT OF CONTACT? (Last, First, MI.) (Include email)</b> Dean, Erica, L (erica.dean.5@us.af.mil)			<b>DUTY PHONE/PAGER No.</b> 210-292-2962
<b>AUTHORSHIP AND CO-AUTHOR(S) (List in the order they will appear in the manuscript)</b>			
<b>LAST NAME, FIRST NAME AND MI.</b>	<b>GRADE/RANK</b>	<b>SQUADRON/GROUP/OFFICE SYM</b>	<b>INSTITUTION (If not 59 MDW)</b>
a. Primary/corresponding author Dean, Erica L.	GS-11	AETC/59CRD/SGVUO	
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c.			
d.			
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<b>AUTHOR'S PRINTED NAME/RANK/GRADE</b> Erica Dean GS-11		<b>AUTHOR'S SIGNATURE</b> DEAN.ERICA.L.1457922155 <small>Digitally signed by DEAN.ERICA.L.1457922155              DN: cn=U.S. Government, ou=DoD, ou=AF, ou=DEAN.ERICA.L.1457922155              Date: 2016.11.09 12:06:38 -0800</small>	<b>DATE</b> Dec 8, 2016
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## Use of Miniature Marshmallows to Reduce Stress, Enhance Safety, and Increase Efficiency When Working With Sinclair Miniature Swine

E. Dean

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"The views expressed are those of the authors and do not reflect the official views or policy of the Department of Defense or its Components. The experiments reported herein were conducted according to the principles set forth in the *National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals* and the *Animal Welfare Act of 1966, as amended*." This is original work done by the author.

We are constantly being asked to do more with less- more research studies with more animals to care for but with less time and fewer employees. How do we continue to keep our quality of care top notch while still meeting the desired pace? Enrichment is the answer. Enrichment reduces animal and employee stress, enhances safety, and increases facility efficiency. Our facility has found Sinclair Miniature Swine are calmer and less stressed if they are provided extra human interaction and enrichment during their acclimation period. At first glance the initial cost of employee time may appear prohibitive but the resultant savings are priceless. Sinclair Miniature Swine familiar with people and mini-marshmallows are easily trained to perform simple husbandry behaviors such as standing still or walking from one cage to another. These behaviors minimize the need for physical handling thereby reducing stress, decreasing procedure time, and enhancing safety. Everyone wins with enrichment.





# Disclaimer



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# Use of Miniature Marshmallows to Reduce Stress, Enhance Safety, and Increase Efficiency When Working With Sinclair Miniature Swine



Presented by: Erica Dean, RN



# Who am I?

**karen  
pryor**  
CLICKER TRAINING





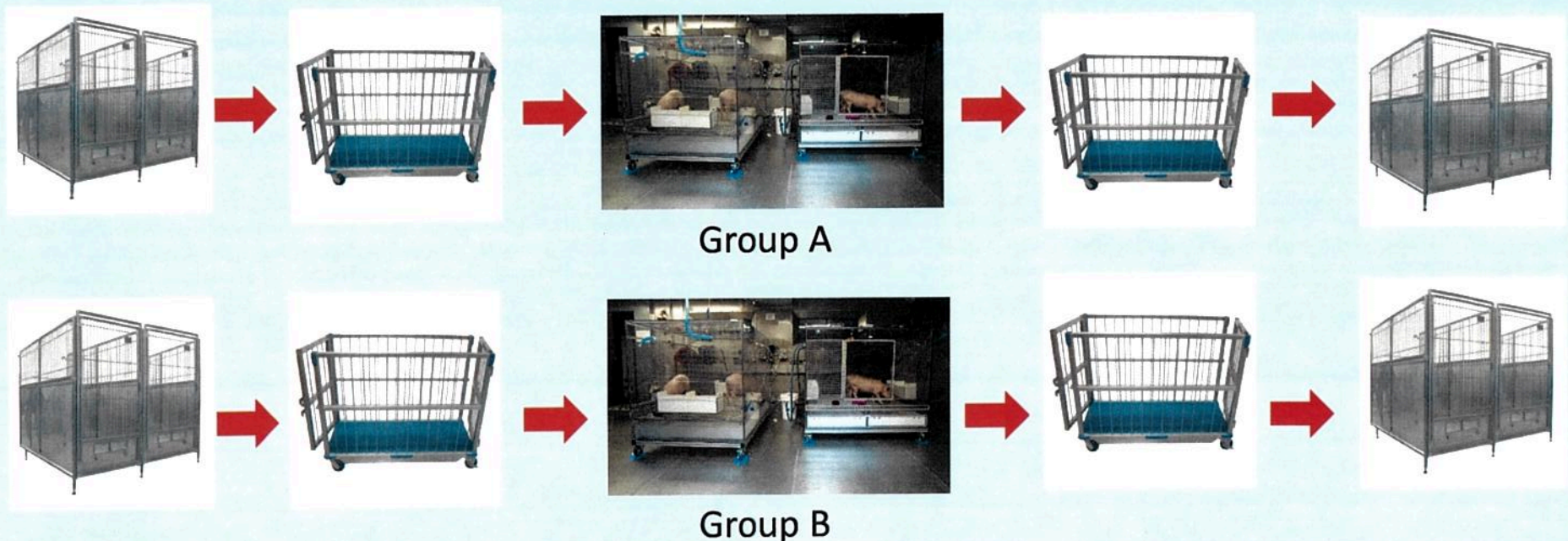
# 59<sup>th</sup> Clinical Research Division





# How it all started...

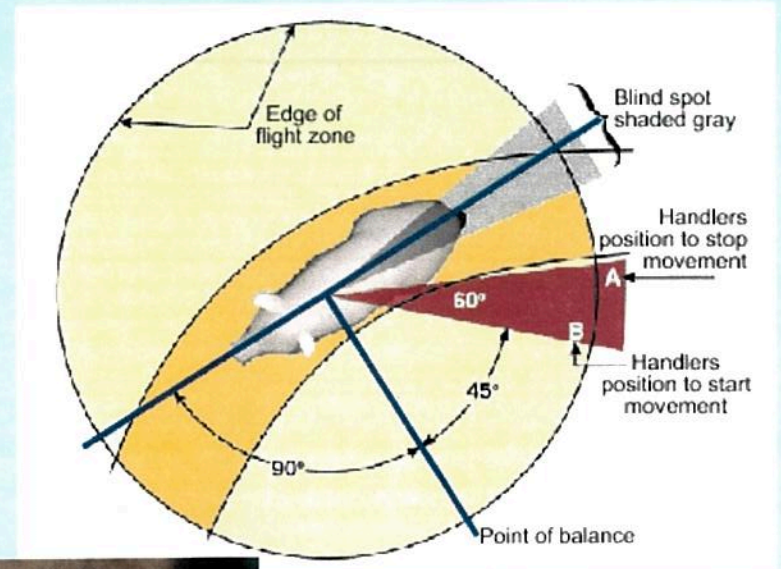
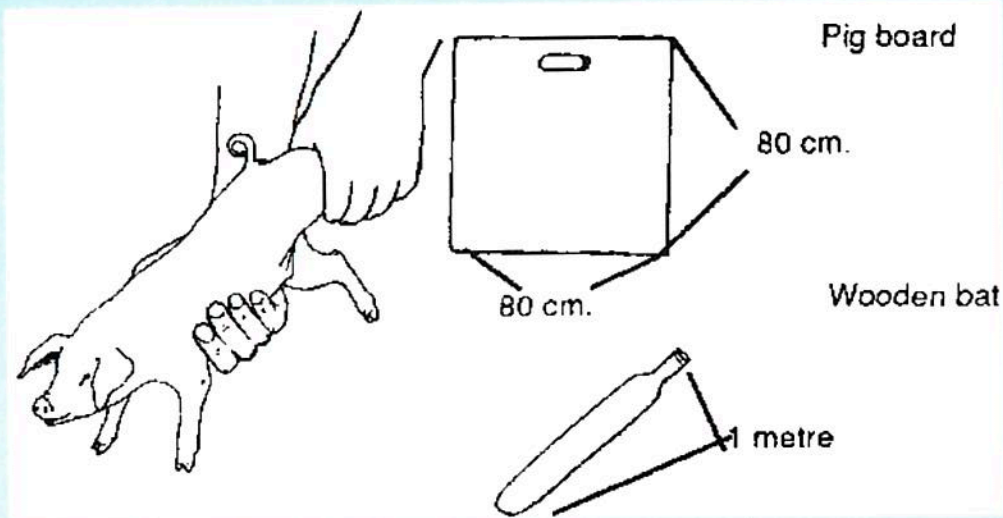
- Research project proposed
- 2 groups of 3-4 Sinclair Miniature Swine
- 4 cage changes every three days for six episodes
  - 4 cage changes X 4 animals/group X 2 groups X 6 episodes = **192 Cage Changes** per study arm





# What are my options?

- Agricultural methods for movement





What makes a pig “tick”?

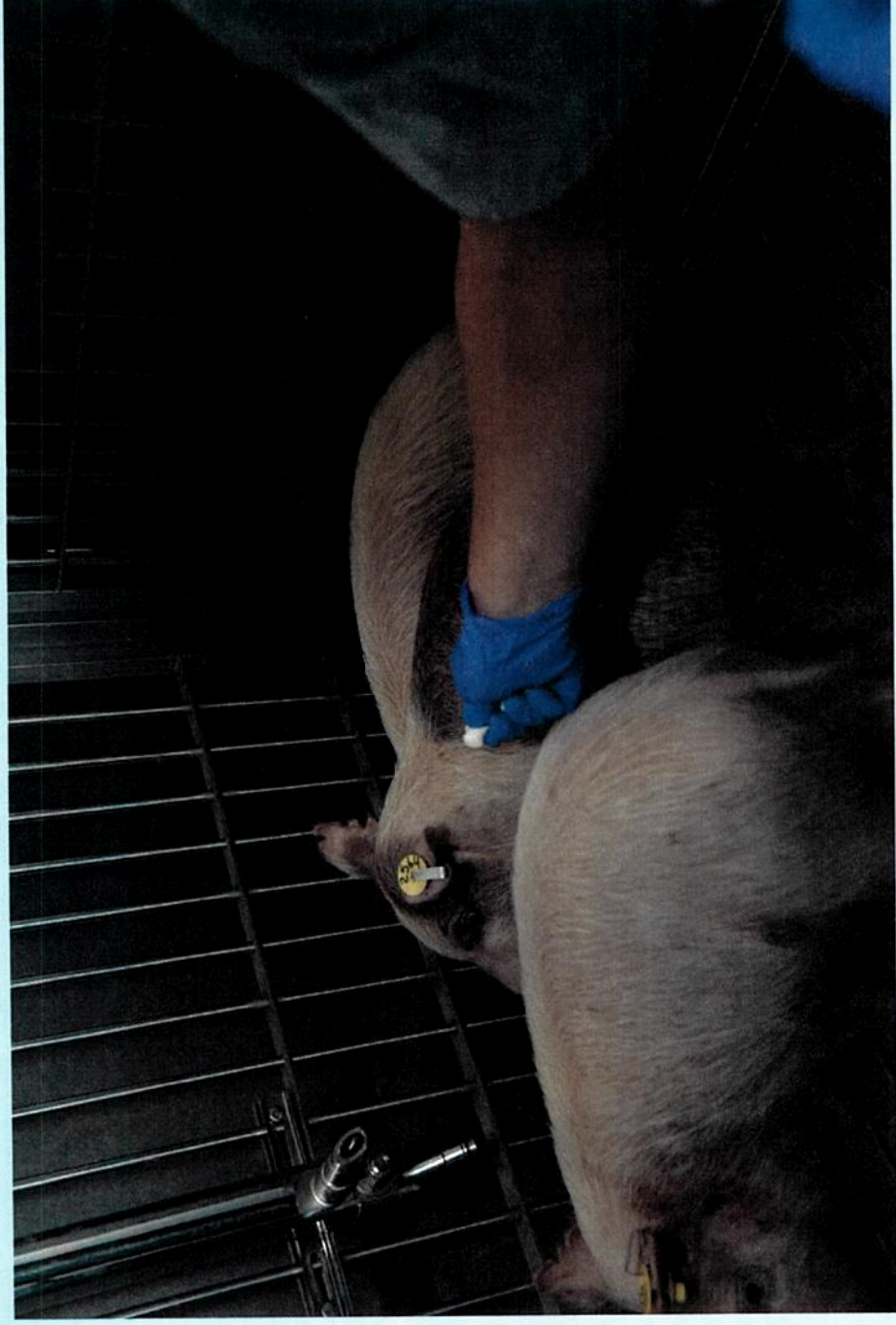




# Food enrichment...so many options!



# Step one: Introductions





Step two: Slow it down





## Step three: Patience





Step four: Follow your nose





Step five: No more freebies!



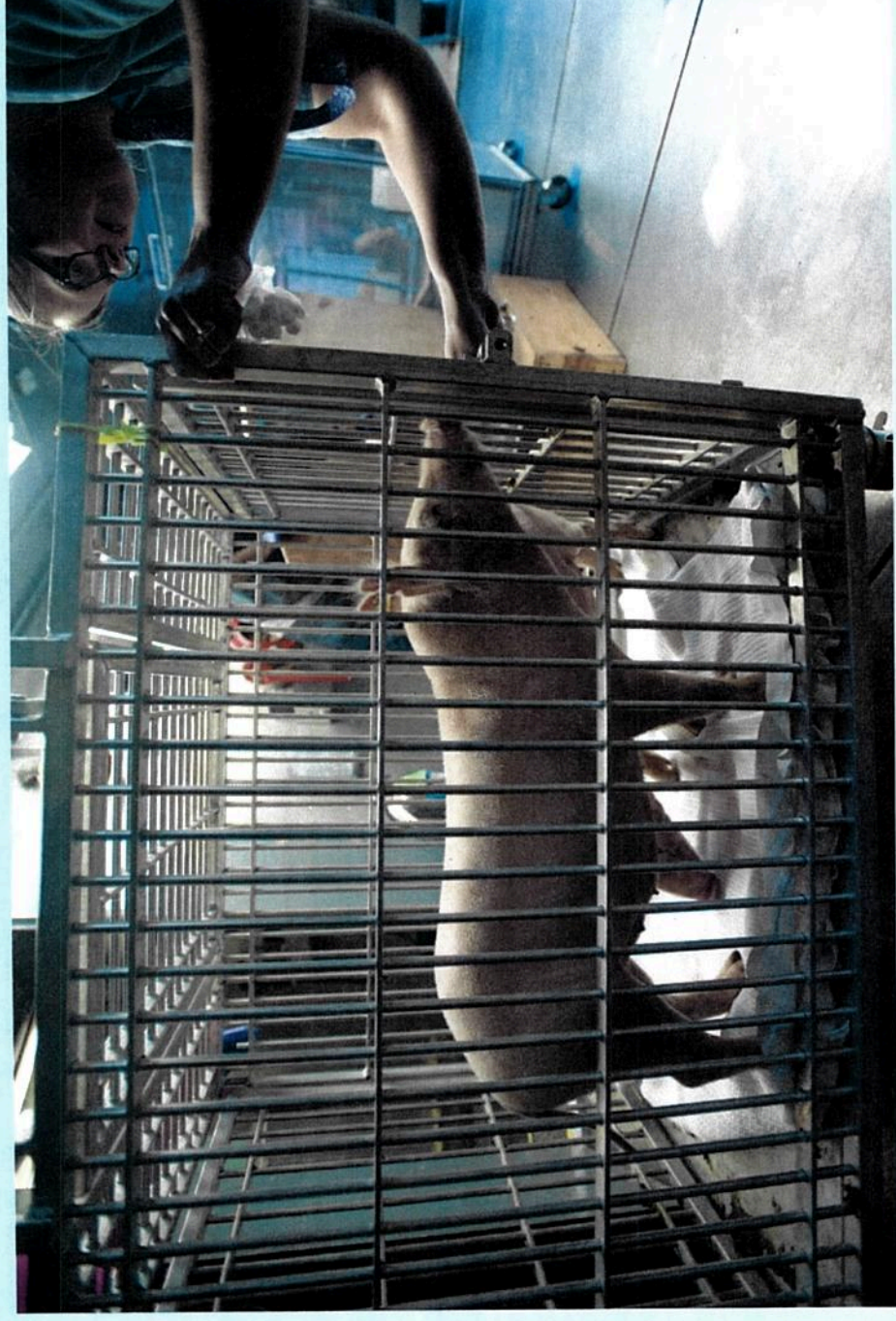


## Step six: Social species to the rescue





## Step seven: Priming the pump





## Step eight: Up the ramp





## Step nine: Positive reinforcement





# Step ten: The jackpot!





## Step eleven: The return trip





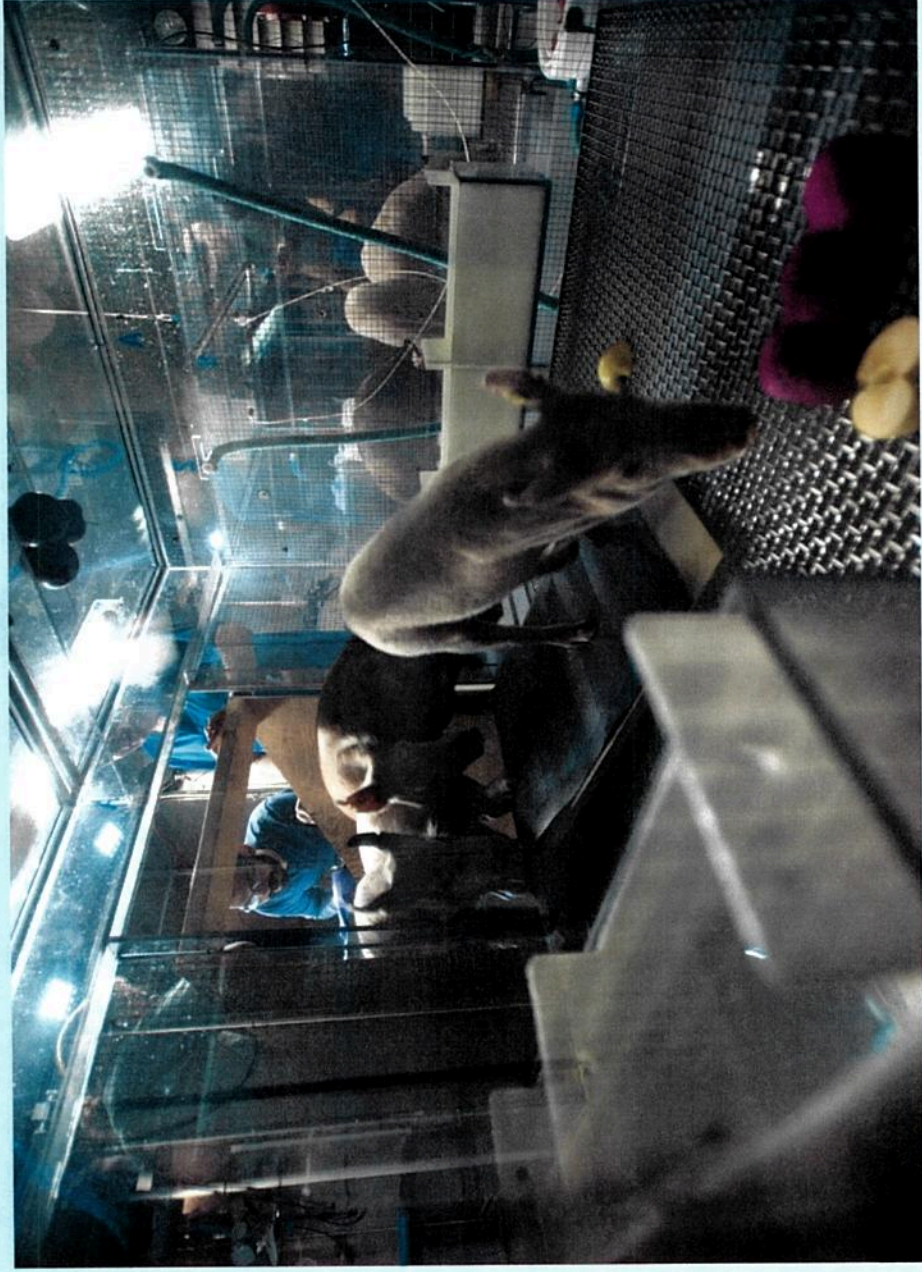
Let's fast forward a bit now...

We've done this a time or two...





Success!!





We know what time it is...





Let's GO already!!





We've got this.





# Questions?





# References

- Agricultural and Consumer Protection. (2016). Chapter 4: The Pig [Digital image]. Retrieved October 12, 2016, from <http://www.fao.org/docrep/T0690E/t0690e06.htm>
- Alternative Design Manufacturing Supply. (2016). Modular Large Animal Run [Digital image]. Retrieved October 13, 2016, from <http://www.altdesign.com/products/small-large-animal/modular-large-animal-run/>
- Alternative Design Manufacturing Supply (2016). Open Top Animal Transport Unit [Digital image]. Retrieved October 13, 2016, from <http://www.altdesign.com/products/small-large-animal/open-top-animal-transport-unit/>
- American Institute of Stress. (n.d.). *Workplace stress*. Retrieved from <http://www.stress.org/workplace-stress/>
- Cheerios. (n.d.). Cheerios [Digital image]. Retrieved October 12, 2016 from <http://www.cheerios.com/products>
- Clipart Kid. (2016). Nurse Emblem Clip Art [Digital image]. Retrieved October 12, 2016, from <http://www.clipartkid.com/nurse-emblem-clip-art-http-www-naturalrockdesigns-com-symbols-images-p1V2sS-clipart/>
- Eatnuts.com. (2013-2016). Banana Chips [Digital image]. Retrieved from <https://www.eatnuts.com/banana-chips>
- Grandin, Temple. (n.d.). *Minimizing stress in pig handling*. Retrieved from [http://www.humanechoice.com.au/pig\\_handling](http://www.humanechoice.com.au/pig_handling)
- Karen Pryor Clicker Training. Other Animals [Digital image]. Retrieved October 12, 2016, from <http://www.clickertraining.com/all-animals?source=navbar>
- Mellen, J., & Barber, J. (2009, September 4). Disney's Animal Programs [Digital image]. Retrieved October 12, 2016, from <http://www.animalenrichment.org/Welcome.html>
- Pig Disease Information Centre (2003-2006). Pig Catcher- Animal Handling Farm Equipment [Digital image]. Retrieved October 12, 2016, from <http://www.pighealth.com/offers/item/equipment>
- See, Todd. (2002, November 27). Handling and Moving Pigs [Digital image]. Retrieved October 12, 2016, from <http://www.thepigsite.com/articles/730/handling-and-moving-pigs/>
- Sinclair BioResources. (2016). Sinclair™ Miniature Swine [Digital image]. Retrieved October 12, 2016, from <http://www.sinclairbioresources.com/miniature-swine/sinclair/>
- Swindle, M. Michael. (2007). *Swine in the laboratory: surgery, anesthesia, imaging, and experimental techniques*. Boca Raton, FL: CRC Press
- U.S. Air Force (n.d.). Aim High [Digital image]. Retrieved October 12, 2016, from <https://www.airforce.com/>
- Varian Medical Systems. (1999-2016). Veterinary Care [Digital image]. Retrieved October 12, 2016, from <https://www.varian.com/x-ray-imaging-components/solutions/medical-imaging/veterinary-care>
- Walmart.com. (n.d.). Kraft Jet-Puffed Miniature Marshmallows, 16oz [Digital Image]. Retrieved from <https://www.walmart.com/ip/Jet-Puffed-Miniature-Marshmallows-16-oz/10293831>
- Wikipedia. (2016, October 8). Georgia Aquarium [Digital image]. Retrieved October 12, 2016, from [https://en.wikipedia.org/wiki/Georgia\\_Aquarium](https://en.wikipedia.org/wiki/Georgia_Aquarium)
- Wikipedia. (2016, 9 October). Nilla [Digital image]. Retrieved October 12, 2016 from <https://en.wikipedia.org/wiki/Nilla>
- World Bird Sanctuary. (2016). Home [Digital image]. Retrieved October 12, 2016, from <http://www.worldbirdsanctuary.org/>